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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/636,246	08/10/2000	SHUMIN WANG	98124X205843	6397

29050 7590 05/31/2002

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EXAMINER

BROWN, CHARLOTTE A

ART UNIT	PAPER NUMBER
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1765

8

DATE MAILED: 05/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/636,246

Applicant(s)

Wang et al.

Examiner

Charlotte A. Brown

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Aug 10, 2000
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above, claim(s) 32-35, 45, and 46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31, 36-44, and 47-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 and 6
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-31, 36-44, and 47-51, drawn to a system for polishing a multi-layer substrate, classified in class 252, subclass 79.1.
 - II. Claims 32-35, 45 and 46, drawn to a method for polishing a multi-layer substrate, classified in class 438, subclass 692.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed can be used in a materially different process of using that product such as not polishing the first metal layer with the system until at least a portion of the first metal layer is removed from the substrate.

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3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with John Kilyk on March 14, 2002 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-31, 36-44, and 47-51. Affirmation of this election must be made by applicant in replying to this Office action. Claims 32-35 and 45-46 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-31, 36-44, and 47-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US 5,770,103).

Wang discloses aqueous slurries which are useful for the chemical-mechanical polishing of substrates. The polishing slurries are used in the chemical-mechanical polishing of composites comprised of a titanium and another metal. The other metal commonly used is tungsten, aluminum, or copper (Column 2, lines 16-21). The slurry comprises water, abrasive particles, an oxidizing agent, and a compound. The abrasive particles in the composition of the present invention may be alumina, silica, ceria, and zirconia (Column 2, lines 23-26). The oxidizing agent may be comprised of any of the common oxidizing agents such as nitrates, iodates, chlorates, perchlorates, and peroxides (Column 2, lines 32-35). The composition may further comprise compounds which act as complexing agents or chelating agents. These compounds include polycarboxylic acid (Column 2, lines 60-62). This reads on the applicant's limitation of the system comprising a polishing additive. The system also comprises a compound which is a mono-, di-, or substituted phenol wherein at least one of the substituted functional groups is polar. The

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functional groups include amine and nitro groups (Column 2, lines 4-10). Therefore, the composition includes a stopping compound. In one embodiment of the invention, the polishing composition is used to polish a tungsten and a layer of titanium/titanium nitride. According to Table 1, the titanium/titanium nitride layer is polished faster than the tungsten layer. Therefore, the polishing selectivity of titanium nitride layer is greater than the tungsten layer.

Unlike the claimed invention, Wang does not teach a stopping compound with a polishing selectivity of the first metal layer :second metal layer of at least about 30:1. He does teach that the second metal layer is polished faster than the tungsten layer. It is the Examiner's position that a person having ordinary skill in the art would have found it obvious to increase the polishing selectivity of the slurry between the two materials in order to remove the second layer from the substrate.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (US 6,069,080 , US 6,099,394, and US 6,022,264)

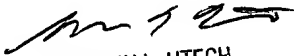
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9. Any inquiry concerning this communication from the Examiner should be directed to Charlotte A. Brown whose telephone number is 703-305-0727. The Examiner can normally be reached during the hours of 9:00AM to 6:30PM.

The fax phone numbers where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-872-9311 for After Final communications.

CAB

March 21, 2002


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